

Algebra RH

Answer Key - Real Numbers and Properties Review Sheet

1. Sometimes, $x = 4$, $-x = -4$ or $x = -4$, $-x = 4$
2. Always, $x = -4$, $y = 5$ $5 - (-4) = 9$
3. Always
4. Sometimes, $\{0,1,2,3,4,\dots\}$ Integers that are whole numbers
5. Always, $|5| = 5$ or $|-5| = 5$
6. False, $5 + 0 = 5$ Additive Identity Property
7. False, $|-9 + 3| = |-6| = 6$ and $6 \neq 12$
8. False, 0 is a whole number, Natural #'s $\{1,2,3,4,\dots\}$
9. True, $(-6)^3 = (-6)(-6)(-6) = -216$ $-6^3 = (-1)(6)(6)(6) = -216$
10. False, $-\frac{3}{5} < -\frac{2}{7}$ because $-\frac{21}{35} < -\frac{10}{35}$ ← closer to 0
11. False, an even integer is the result of the sum of odd integers Ex: $-3 + 1 = -2$
12. False, $\sqrt{81} = 9$, $\sqrt[3]{27} = 3$
13. -3, Distributive Property
14. 1, Multiplicative Identity Property
15. Many answers Ex: $x = 5$, $y = -4$ is one example (+)(-)
16. $-y^2 = 9$, There is no value for y that makes this statement true.
 $y = 3 \rightarrow -(3)^2 = -9$ or $y = -3 \rightarrow -(-3)^2 = -9$
17. $-\frac{2}{3} \cdot -3 = 2$
18. $-\frac{1}{4} + 3$ is $3 - \frac{1}{4} = 2\frac{3}{4}$
19. $-2 - 4 + 7 = 1$
20. $4 - (-5)(8)$
 $4 - (-40)$
 44
21. $(-3)(-8)(-2)$
 $24(-2)$
 -48
22. $-8.9 - (-3.2)$
 $-8.9 + 3.2$ is the negative value of $8.9 - 3.2$ which is -5.7
23. $\sqrt{72}$
 $\sqrt{36}\sqrt{2}$
 $6\sqrt{2}$
24. $-2\sqrt{250a^3b^4}$
 $-2\sqrt{25}\sqrt{10}\sqrt{a^2}\sqrt{a}\sqrt{b^4}$
 $-2 \cdot 5 \cdot a \cdot b^2 \sqrt{10a}$
 $-10ab^2\sqrt{10a}$

$$\begin{aligned}
 25. \quad & \left(3\frac{1}{4} - 2\right) \div 5 - 8 \\
 & 1\frac{1}{4} \div 5 - 8 \\
 & \frac{5}{4} \cdot \frac{1}{5} - 8 \\
 & \frac{1}{4} - 8 \\
 & -7\frac{3}{4}
 \end{aligned}$$

$$\begin{aligned}
 26. \quad & -18 + 6^2 \div 4 \cdot 7 - 5 \\
 & -18 + 36 \div 4 \cdot 7 - 5 \\
 & -18 + 9 \cdot 7 - 5 \\
 & -18 + 63 - 5 \\
 & 40
 \end{aligned}$$

$$\begin{aligned}
 27. \quad & \left(\frac{1}{8} \div \frac{1}{8}\right)^2 + \frac{1}{8} \cdot \frac{1}{8} - \frac{1}{16} \\
 & (1)^2 + \frac{1}{8} \cdot \frac{1}{8} - \frac{1}{16} \\
 & 1 + \frac{1}{64} - \frac{1}{16} \\
 & \frac{64}{64} + \frac{1}{64} - \frac{4}{64} \\
 & \frac{61}{64}
 \end{aligned}$$

$$\begin{aligned}
 28. \quad & .02[26 - 20(.64 + .3)] \\
 & .02[26 - 20(.94)] \\
 & .02[26 - 18.8] \\
 & .02(7.2) \\
 & .144
 \end{aligned}$$

$$\begin{aligned}
 29. \quad & 82 - 4x^3y \\
 & 82 - 4(-4)^3(6) \\
 & 82 - 4(-64)(6) \\
 & 82 + 256(6) \\
 & 82 + 1536 \\
 & 1618
 \end{aligned}$$

$$\begin{aligned}
 30. \quad & \frac{2(x-y)}{y-z} \\
 & \frac{2(-4-6)}{6-(-3)} \\
 & \frac{2(-10)}{9} \\
 & \frac{-20}{9} = -2\frac{2}{9}
 \end{aligned}$$

$$\begin{aligned}
 31. \quad & -7 + \frac{3x}{z} \\
 & -7 + \frac{3(-4)}{-3} \\
 & -7 + \frac{-12}{-3} \\
 & -7 + 4 \\
 & -3
 \end{aligned}$$

$$\begin{aligned}
 32. \quad & \frac{-x}{z} - 9 \\
 & \frac{-(-4)}{-3} - 9 \\
 & -\frac{4}{3} - \frac{27}{3} \\
 & -\frac{31}{3}
 \end{aligned}$$

$$\begin{aligned}
 33. \quad & (ac) \div (ab) \\
 & \left(\frac{2}{3}(-4)\right) \div \left(\frac{2}{3}\left(-\frac{1}{5}\right)\right) \\
 & -\frac{8}{3} \div -\frac{2}{15} \\
 & -\frac{8}{3} \cdot \frac{15}{2} \\
 & 20
 \end{aligned}$$

$$\begin{aligned}
 34. \quad & 6(2a + b + \frac{1}{2}c) \\
 & 6\left(2 \cdot \frac{2}{3} + -\frac{1}{5} + \frac{1}{2}(-4)\right) \\
 & 6\left(\frac{4}{3} + -\frac{1}{5} + -2\right) \\
 & 6\left(\frac{20}{15} + -\frac{3}{15} + -\frac{30}{15}\right) \\
 & 6\left(-\frac{13}{15}\right) \\
 & -\frac{26}{5} = -5\frac{1}{5}
 \end{aligned}$$

$$\begin{aligned}
 35. \quad & 2ab \cdot 3bc \\
 & 2\left(\frac{2}{3}\right)\left(-\frac{1}{5}\right) \cdot 3\left(-\frac{1}{5}\right)(-4) \\
 & -\frac{4}{15} \cdot \frac{12}{5} \\
 & -\frac{16}{25}
 \end{aligned}$$

Be aware of how all the work is shown for #'s 23-35. You are expected to show all your work in "good form" on the exam.